

Claims

1. A process for producing microparticles, characterized in that the process comprises feeding into a heat source a raw material in the form of a liquid stream, liquid droplets, or powder; capturing the formed product in the form of microparticles by means of an atomized liquid fluid; and collecting the microparticles in the form of slurry through gas-liquid separation.

2. A process for producing microparticles according to claim 1, wherein the raw material to be fed into the heat source is provided through forming a molten material into a liquid stream or liquid droplets.

3. A process for producing microparticles according to claim 1, wherein the raw material to be fed into the heat source is in the form of atomized powder.

4. A process for producing microparticles according to any one claims 1 to 3, wherein the gas-liquid separation is performed by means of a cyclone separator.

5. A process for producing microparticles according to any one claims 1 to 4, wherein the heat source is acetylene flame or DC plasma flame.

6. A process for producing microparticles according to any one claims 1 to 5, wherein the liquid fluid is water.

7. A process for producing microparticles according to any one claims 1 to 6, wherein the raw material is at least one member selected from among metals, alloys, oxides,

nitrides, and oxide nitrides.

8. A process for producing microparticles according to any one claims 1 to 7, wherein the heat source is an oxidizing atmosphere or a nitrifying atmosphere, whereby oxide microparticles, nitride microparticles, or oxide nitride microparticles are produced.

9. A process for producing microparticles according to any one claims 1 to 7, wherein the raw material is an In-Sn alloy or ITO powder, from which indium oxide-tin oxide powder is produced.

10. A process for producing microparticles according to claim 9, which produces indium oxide-tin oxide powder having a tin content of 2.3 to 45 mass% as calculated on the basis of SnO_2 .

11. A process for producing microparticles according to any one claims 1 to 10, wherein the product flows at a maximum speed of 150 m/sec or less, when the product is captured by means of the liquid fluid.

12. An apparatus for producing microparticles, characterized in that the apparatus comprises

an inlet for introducing, into the inside of the apparatus, a gas fluid and a product obtained through feeding a raw material in the form of a liquid flow, liquid droplets, or powder into a heat source;

a fluid jetting means for jetting an atomized liquid fluid to the introduced product;

a first gas-liquid separation means for subjecting, to

gas-liquid separation, microparticles captured by the liquid fluid, to thereby form a slurry of the microparticles; and

a first circulating means for returning a part of an atmosphere fluid containing microparticles that have not been captured by the liquid fluid to a position where the fluid jetting means is disposed.

13. An apparatus for producing microparticles according to claim 12, which further comprises, on the downstream side of the first gas-liquid separation means, a second gas-liquid separation means, the second gas-liquid separation means being provided for introducing a part of an atmosphere fluid containing microparticles that have not been captured by the liquid fluid, for jetting an atomized liquid fluid to the atmosphere fluid, and for performing gas-liquid separation, to thereby obtain a slurry of the microparticles.

14. An apparatus for producing microparticles according to claim 13, which apparatus further comprises, on the downstream side of the second gas-liquid separation means, a second circulating means for returning a part of an atmosphere fluid containing microparticles that have not been captured by the liquid fluid to the inlet of the second gas-liquid separation means.

15. An apparatus for producing microparticles according to any of claims 12 to 14, wherein the first or second gas-liquid separation is a cyclone separator.

16. An apparatus for producing microparticles according to any of claims 12 to 15, wherein the particles flow at a

maximum speed of 150 m/sec or less, when the microparticles are captured by the liquid fluid jetted by means of the fluid jetting means.